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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/502,143	02/11/2000	Aura Ganz	10359-004001	4808

26161 7590 08/29/2003

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BOSTON, MA 02110

EXAMINER

VOLPER, THOMAS E

ART UNIT	PAPER NUMBER
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2697

DATE MAILED: 08/29/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/502,143

Applicant(s)

GANZ ET AL.

Examiner

Thomas Volper

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1,3-8,12,14-17,19-22 and 24-46 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,3-8,12,14-17,19-22 and 24-46 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_ 6) ☐ Other: \_\_\_\_

## **DETAILED ACTION**

### ***Information Disclosure Statement***

1. The information disclosure statement filed 10 July, 2000 fails to comply with 37 CFR 1.98(a)(2), which requires a legible copy of each U.S. and foreign patent; each publication or that portion which caused it to be listed; and all other information or that portion which caused it to be listed. It has been placed in the application file, but the information referred to therein has not been considered.

### ***Claim Objections***

2. Claim 36 is objected to because of the following informalities: It is unclear how the plurality of stations can be accepting messages and also be transmitting accepted messages. It is also unclear whether these messages are the polling messages of claim 35, or are different messages. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:  

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
4. Claim 20 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

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5. Claim 20 recites the limitation "the new communication session" in line 2. There is insufficient antecedent basis for this limitation in the claim.

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1, 4, 8, 12, 14, 15, 17, 20, 21, 24, 26, 27, 28, 30-38 and 41-46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ruszczyk et al. (U.S. Patent No. 5,886,993) in view of Joshi et al. (U.S. Patent No. 6,006,017).

Regarding claims 1, 4, 8, 12, 15, 17, 21, 24, 30, 35 and 41-45, Ruszczyk discloses a headend unit (910) that includes a connection manager (915) that provides connection admission control for efficient and fair allocation of network resources to individual end users subject to QoS constraints (col. 11, lines 31-39). The headend unit coordinates access to a shared medium, which may be a hybrid fiber-optic/coaxial (HFC) or wireless network (col. 2, lines 6-13). The headend unit provides access to such networks as the Internet, on-line services, telephone and cable networks (col. 2, lines 17-20). One constraint is that certain priority classes may be limited to a maximum number of contention mini-slots (col. 5, lines 44-47). A feedback controller (913) determines the assignment of mini-slots for each contention cycle and formats control messages, which may be targeted poll messages, downstream to the users. A headend scheduler (914) controls the timing of the control message transmissions by the feedback controller (col. 11, lines

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44-53). The formation of targeted poll messages and timing of these messages meets the limitations of determining a polling pattern. Ruszczyk fails to expressly disclose adapting assignment of the communications resources and adapting the polling pattern. Joshi discloses that the proportion or percentage of channels allocated for specific polling may be varied dynamically in response to the potentially changing transmission requirements of the network. This meets the limitations of adapting the assignment of communication resources in accordance with received statistics. At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to adapt the allocation of resources and adapt the polling pattern of Ruszczyk in accordance with changing transmission requirements of the network. One of ordinary skill in the art would have been motivated to do this in order to provide more efficient allocation of resources.

Regarding claim 14, Ruszczyk discloses that the headend unit transmits data to an Access Interface Unit (AIU) on a downstream channel (col. 2, lines 21-28). The communication channels are carried by a shared medium such as a wireless network (col. 2, lines 10-13).

Regarding claims 20 and 28, Ruszczyk discloses connection admission control to users in accordance with QoS constraints. Maximum delay is a well-known QoS constraint.

Regarding claims 26 and 27, Ruszczyk discloses a headend unit (910), which represents the arbiter station of the present invention.

Regarding claims 31 and 32, Ruszczyk fails to expressly disclose assigning resources for a plurality of channels wherein assigning resources includes determining a separate polling pattern for each channel. Joshi et al. discloses a plurality of channels wherein each channel employs a specific polling procedure (col. 13, lines 42-58). At the time the invention was made,

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it would have been obvious to a person of ordinary skill in the art to provide a separate polling procedure for each channel so as to more efficiently tailor the assignment of resources to the specific loads on each channel.

Regarding claims 33 and 34, Rusczyk discloses that the shared channel may be wireless and that the headend may be connected to a telephone network.

Regarding claim 36, Rusczyk discloses a User Interface (925) in Figure 9. In order for anything to be displayed at a user interface level, i.e. application layer in the standard OSI seven layer model, the information must have traveled through the network layer to process the encapsulating protocol. At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to provide software at the network layer to process accepted messages. One of ordinary skill in the art would have been motivated to do this in order to prepare the information contained in the accepted message for the user interface.

Regarding claims 37 and 38, Rusczyk fails to expressly disclose using an Ethernet protocol and Internet Protocol (IP). Ethernet and IP are two protocols that are well known in the art and widely used. At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to use Ethernet and IP in the system provided by the teaching of Rusczyk et al. (U.S. Patent No. 5,886,993) in view of Joshi et al. (U.S. Patent No. 6,006,017). One of ordinary skill in the art would have been motivated to do this to be compatible with systems that already use Ethernet and IP.

Regarding claim 46, Rusczyk discloses that the headend may be connection to a communication network (140).

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8. Claims 3, 16, 19, 22 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ruszczyk et al. (U.S. Patent No. 5,886,993) in view of Joshi et al. (U.S. Patent No. 6,006,017) as applied to claims 1, 4, 8, 12, 14, 15, 17, 20, 21, 24, 26, 27, 28, 30-38 and 41-46 above, and further in view of Lyles et al. (U.S. Patent No. 5,917,822).

Regarding claims 3, 16, 19 and 22, the teaching provided by Ruszczyk et al. (U.S. Patent No. 5,886,993) in view of Joshi et al. (U.S. Patent No. 6,006,017) meets all of the limitations, except for accepting a request and admitting the new communication session provided available communication resources are not exceeded. Lyles discloses a head-end controller (105) that may be implemented as one or more programs executed by one or more programmable processors (col. 9, lines 25-34). Lyles also discloses that terminal equipment (210) can transmit a request in response to a direct poll by the head-end controller (col. 10, lines 37-450. Access to an upstream channel is granted on a specific station basis. The grants are transmitted as messages in the downstream channel to the appropriate stations (col. 9, line 61 – col. 10, line 7). At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to use the process of granted requested resources in the system provided by the teaching of Ruszczyk et al. (U.S. Patent No. 5,886,993) in view of Joshi et al. (U.S. Patent No. 6,006,017). It would have been obvious to only grant the requested resources if they did not exceed the maximum number of mini-slots allowed for a particular priority class. One of ordinary skill in the art would have been motivated to use the contention based requesting and granting of resources because this is more efficient than polling when the load on a shared medium is low. One would have been motivated to deny a request if it exceeded the maximum number of mini-slots so as not to interfere with mini-slots designated for another priority class.

Regarding claim 25, the teaching provided by Ruszczyk et al. (U.S. Patent No. 5,886,993) in view of Joshi et al. (U.S. Patent No. 6,006,017) meets all of the limitations, except for adapting assignment of the communications resources and adapting the polling according to queue length. Lyles discloses that the head-end controller maintains a representation of a queue for each traffic class for the terminal equipment in the form of a counter for the aggregate number of requests received but not yet granted for the identified terminal equipment (col. 14, lines 9-13). At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to adapt the assigning of resources and the polling pattern according to the queue counter for each terminal. One of ordinary skill in the art would have been motivated to do this in order to allow terminals with a full queue to be polled to transmit data.

9. Claims 5, 6 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ruszczyk et al. (U.S. Patent No. 5,886,993) in view of Joshi et al. (U.S. Patent No. 6,006,017) as applied to claims 1, 4, 8, 12, 14, 15, 17, 20, 21, 24, 26, 27, 28, 30-38 and 41-46 above, and further in view of Schoch (U.S. Patent No. 5,973,609).

Regarding claims 5 and 6, the teaching provided by Ruszczyk et al. in view of Joshi et al. meets all of the limitations of claim 5, except assigning communications resources according to maximum intervals between polling of the plurality of sessions. Schoch discloses dividing the stations to be polled into a number of groups. These groups are equivalent to the subsets of the present invention. The maximum number of groups allowed is equal to the total number of data terminals in the system (col. 5, lines 37-62). If the maximum number of groups is allowed, then the interval between polling of each session from each terminal would be at its maximum. At the



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time the invention was made, it would have been obvious to a person of ordinary skill in the art to divide the terminals into groups and use the maximum polling interval. One of ordinary skill in the art would have been motivated to do this in order to decrease the number of collisions on the shared medium.

Regarding claim 7, the teaching provided by Ruszczyk et al. in view of Joshi et al. thus far provides for all of the limitations, except for sending retransmissions and assigning communications resources included adjusted data rate requirements in accordance with the retransmissions. Joshi discloses that when collision occurs on the shared medium, retransmission may be required (col. 2, line 61 – col. 3, line 8). If retransmissions occur, then the bandwidth on the shared medium that can be assigned will automatically become less, i.e. adjusting data rate requirements. At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to use retransmissions in the system provided by Ruszczyk et al. in view of Joshi et al. One of ordinary skill in the art would have been motivated to do this because collisions may occur if polling is performed on a group, or subset, basis.

10. Claim 29 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ruszczyk et al. (U.S. Patent No. 5,886,993) in view of Joshi et al. (U.S. Patent No. 6,006,017) as applied to claims 1, 4, 8, 12, 14, 15, 17, 20, 21, 24, 26, 27, 28, 30-38 and 41-46 above, and further in view of Way (U.S. Patent No. 5,768,280).

Regarding claim 29, the teaching provided by Ruszczyk et al. in view of Joshi et al. provides for all of the limitations, except for assigning communications resources in accordance with security requirements. Way discloses a method of polling to be used to provide network

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security (col. 2, lines 15-31). At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to include this security feature in the system provided by the teaching of Ruszczyk et al. in view of Joshi et al. One of ordinary skill in the art would have been motivated to do this to be sure that no station was pirating bandwidth that it has not been allocated.

11. Claim 39 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ruszczyk et al. (U.S. Patent No. 5,886,993) in view of Nassehi et al. (U.S. Patent No. 5,185,737).

Regarding claim 39, Ruszczyk discloses a headend unit (910), representing the designated station of the present invention, that includes a connection manager (915) that provides connection admission control for efficient and fair allocation of network resources to individual end users subject to QoS constraints (col. 11, lines 31-39). One constraint is that certain priority classes may be limited to a maximum number of contention mini-slots (col. 5, lines 44-47). A feedback controller (913) determines the assignment of mini-slots for each contention cycle and formats control messages, which may be targeted poll messages, downstream to the users. A headend scheduler (914) controls the timing of the control message transmissions by the feedback controller (col. 11, lines 44-53). The formation of targeted poll messages and timing of these messages meets the limitations of determining a polling pattern. Ruszczyk fails to expressly disclose designating another station to perform the polling and monitoring in place of the previously designated station. Nassehi discloses this aspect of the invention in col. 16, lines 50-64. At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to designate another station as the headend in the

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invention of Ruszczyk. One of ordinary skill in the art would have been motivated to do this in case the original headend failed so that the system would still be able to operate.

12. Claim 40 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ruszczyk et al. (U.S. Patent No. 5,886,993) in view of Nassehi et al. (U.S. Patent No. 5,185,737) as applied to claim 39 above, and further in view of Joshi et al. (U.S. Patent No. 6,006,017).

Regarding claim 40, the system provided by the teaching of Ruszczyk et al. (U.S. Patent No. 5,886,993) in view of Nassehi et al. (U.S. Patent No. 5,185,737) meets all of the limitations of claim 40, except adapting assignment of the communications resources and adapting the polling pattern. Joshi discloses that the proportion or percentage of channels allocated for specific polling may be varied dynamically in response to the potentially changing transmission requirements of the network. At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to adapt the allocation of resources and adapt the polling pattern of Ruszczyk in accordance with changing transmission requirements of the network. One of ordinary skill in the art would have been motivated to do this in order to provide more efficient allocation of resources.

### ***Conclusion***

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- Ghaibeh (U.S. Patent No. 5,926,476) Network Architecture for Broadband Data Communication Over a Shared Medium

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14. Any inquiry concerning this communication, or earlier communications from the examiner should be directed to Thomas Volper whose telephone number is 703-305-8405 and fax number is 703-746-9467. The examiner can normally be reached between 8:30am and 6:00pm M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Huy Vu, can be reached at 703-308-6602. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-4750.

tev

August 25, 2003



**HUY D. VU  
SUPERVISORY PATENT EXAMINER  
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